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ABSTRACT

The first of the three papers in this symposium, "Scaling the Walls of Academic Silos: The Birth of a Cross-disciplinary Academic HRD [Human Resource Development] Program" (Ann K. Brooks, Kathleen Edwards, Alison Davis-Blake), describes and analyzes how one HRD program transcended the walls of the graduate school of business and a college of education and created a cooperative program in human resources. "An Examination of Teaching Pedagogies in Entrepreneurial Education, an Historical Examination" (Ayman Tarabishy, Erik K. Winslow, George T. Solomon) discusses results of the 1997 National Survey of Entrepreneurial Education and compares the findings to four earlier national surveys conducted from 1979-1992, with results indicating a trend toward greater integration of practical applications and technology into the teaching pedagogy of entrepreneurial education. "Examination of Critical Issues for Development and Implementation of Online Instruction" (Scott D. Johnson, Nilda Palma-Rivas, Chanidprapa Suriya, Steve Downey), is a descriptive and exploratory study that examined several critical issues affecting the development and implementation of online instructional programs. The intent of the study was twofold: (1) help online program personnel understand the unique challenges and opportunities presented by online instruction; and (2) expand the base of knowledge regarding this new form of instructional delivery. (KC)

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ED 431 946

14 **University HRD Programs**

Chair: Rose Mary Wentling, University of Illinois at Urbana/Champaign

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Scaling the Walls of Academic Silos: The Birth of a Cross-disciplinary Academic HRD Program

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This paper describes and analyzes how one HRD program transcended the walls of the academic silos of a graduate school of business and a college of education and rewrote itself anew in a postmodern world. The purpose of the study was to identify what contributed to and what worked against the establishment of the joint program and to build theory about the postmodern skill of collaborating across boundaries.

Keywords: HRD Programs, Postmodernit

Academic HRD is a field that has never been solidly situated in the modern world. If modernity means clearly bounded, rationally and hierarchically ordered, and based on unitary scientific "truths," then HRD was definitely a field ahead of its time. It spanned disciplinary and professional education boundaries in universities, sought to establish an equal partnership between theory and practice, and was sabotaged in any efforts at enshrining truths by its own diversity of interests and membership.

Although probably unaware of its emerging identity at the time, the "edginess" of HRD reflected its uncomfortable position as a postmodern field. Faculty and students who have struggled to find and maintain a place for their HRD programs in universities characterized by entrenched and heavily bounded academic and resource silos might go so far as to say that postmodern position exceeded uncomfortable and gravitated toward pain. Milan Kundera captures the pain of living on the boundaries in the title of his book The Unbearable Lightness of Being (1984).

According to William Berquist (1993), the pressing themes of postmodernism are constructivism, language as reality, globalism, and segmentalism. He goes on to write that it is "virtually impossible to make a definitive statement about our contemporary world because this world is filled with contradictions and discrepancies...a fragmented and inconsistent postmodern world (p. 32). For academic HRD, these themes are present in its constantly changing definition of itself, its vulnerability (shared often with management) to the "fad of the day," the necessity to address the issues organizations whose allegiance transcends national boundaries, the challenges of a multinational labor force, and the difficulty of wrapping the field up in one neat and unchanging package.

This paper tells the story of the transformation, explains the research methodology, identifies major themes, notes some of the inhibitors to the collaboration, reviews existing literature on institutional collaboration, and suggests a theoretical perspective.

The Story

In the mid-1990's, one of the largest and best known academic HRD programs in the country nearly disappeared. It had lost one of its three faculty, a very visible and well-known scholar in the field. One of the other faculty was under extreme personal stress and the other was as yet, untenured. Most of its resources had been taken over by the department and college and as part of the take over of a designated scholarship fund, its doctoral program had been "put on hold."

In the midst of this demise, a group of adult doctoral students from the program arranged a meeting with the university's president and argued on the program's behalf, explaining what a difference it had made in their lives and in their work in organizations. The university's president and the provost at the time told the graduate dean and vice president for graduate studies that they could see no reason to abolish the program and that they would turn it over to her to handle in whatever way she wished. She chose to save the program by placing it under executive education in the Graduate School of Business and making it a collaborative program between the Graduate School of Business (GSB) and the College of Education (CE).

The relevant deans met and agreed on the financial arrangements. The GSB would capitalize the program and after they had been repaid, the two colleges would split the profits on the basis of the number of courses they

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provided for the program. The program would be at the masters level as were other academic programs under executive education. The relevant department chairs and faculty from each college were called together for a meeting chaired by the dean of executive education. The chairs had already agreed to the arrangement in principle and the next step was for faculty from both colleges to agree to develop the program. After a few weeks, an associate professor from GSB and an associate professor from CE agreed to develop the program. The Dean of Executive Education appointed them as co-directors for the program.

These meetings took place in the early Fall of 1995. Faculty then initiated a day long retreat to address the unease that had been expressed by both partners regarding the values and culture of the other. Out of that meeting came a consensus that the program would be run on a cohort basis, intra-cohort competition would be discouraged, grading standards would be high, the program would be transformative, and the program would require students to do assignments in their workplace based on what they were learning in class. Later meetings mapped out a content curriculum that included human resource development, human resource management, and business. Conceptually, the curriculum focused the first year on HRD as a strategic partner and the second on the role of HRD in globalization. In terms of skills, students learned interpersonal, change, HR, and business skills. Structurally, the program consisted of an initial week-long executive seminar during August focused on strategy, two semesters, a week-long seminar during the next August focused on globalization, two semesters, and a final action learning experience in Australia (Brooks, 1998).

Marketing began in earnest during the spring of 1996. Brochures and flyers were printed and relevant business, government and professional organizations were contacted. Students from the previous program played an instrumental role in marketing the new program by sharing with prospective students how the original program had changed their lives. By summer, students were still being recruited for the program with the last student accepted into the program only the day before the executive seminar was to begin.

Initially, students in the program received their degree in the College of Education. However, after the program was approved by the legislature and the Graduate Assembly had granted tentative approval for it to go ahead, the Graduate School of Business pushed the Higher Education Coordinating Board to grant the program its own degree. The program was christened the Masters in Human Resources Development Leadership Program (MHRDL), and assigned the prerogative to have its own graduate advisor and graduate studies committee. The GSB oversees all marketing and financial matters. Permanent staff and faculty for the program include a full-time administrative assistant, a program facilitator, and two co-directors. In the spring of 1999, the program will present its accomplishments before the Graduate Assembly of the university for final approval as a permanent graduate level program.

The program graduated one cohort in May 1998 and has two cohorts in-progress. Initial class sizes have ranged from 21 to 30 students. Students must have five years work experience to qualify for the program. They must currently be working in the field of (or be anticipating a shift to) HRD.

Methodology

This research addressed the question of how a particular HRD program was established as a collaborative project between a graduate school of business and a college of education. The purposes of the research were to identify the factors that contributed to and worked against the program's development and to contribute to theory on institutional collaborations.

The assumptions on which this study is based are those hermeneutics. In other words, the data represents different perspectives and has gone through several intersubjective interpretations prior to appearing on this page. Through the process of interviewing and conversation, the stories told by those involved have developed and changed. Thus, the paper is a hermeneutic reconstruction of the interplay of all of those stories, both written and unwritten, in the creative minds of the authors.

Data collected included formal interviews, informal conversation and interviews, observation, and documents. The administrative faculty member conducted formal interviews with the Vice President and Dean of Graduate Studies, the Dean of Executive Education, the two co-directors, the Program Facilitator and seventeen graduates of the program.

One of the co-directors and the program facilitator analyzed the data through a process by which the co-director interviewed the facilitator regarding the following questions: (1) what surprised her the most? (2) what was the thematic story told by each of the interviewees? (3) what factors seemed to inhibit the development of the program? (4) what factors seemed to work on the program's behalf? (5) what motivated each of the major players in initiating and developing the program?

One of the three research collaborators wrote the paper. The others contributed through critical and creative reading. Thus, the actual written product is a joint construction of all three collaborators.

Validity is conceptualized in hermeneutic terms as the situated negotiation of meaning by all who participated in the research project, whether as the research population or as the researchers.

Thematic Analysis

This collaborative program was born of a confluence of events and people that enabled a quick and successful startup. Only one year passed from the time the Vice President and Dean of Graduate Studies initiated the discussions with the two deans of the colleges and the beginning of the first cohort's first executive seminar. The particular milieu that made this development possible included a favorable political and social context, the ability to capitalize on diversity, key players with strong personal motivations, and the cultivation and maintenance of interpersonal relationships and communication.

Political and Social Context

The development of the program took place within a national controversy over the appropriate role of higher education. The "ivory tower" was under assault by those who believed universities had become too isolated and out of touch with their communities' needs. Student demographics were changing from predominantly 18 to 21 year olds to older returning students. The national agenda had begun to focus on preparing people for the workforce and communities eager to attract industry were addressing the need to provide educated workers. Distance education was beginning to put a more competitive edge on education, throwing educators into the same competitive fray as other enterprises affected by global rather than just local competition. Information became more readily available to "everyman" through the Internet.

Within this context, universities seriously began to consider what role they would play in this changed world. The monopoly on information no longer conveyed a privileged status. The perceived privileged life of tenured professors was beginning to grate on state legislators who answered to a constituency of workers being asked to put in longer and more intense work hours with little increase in reward. Finally, many state universities were experiencing cuts in funding that increasingly was shifting the burden of financing higher education to the universities themselves.

All of these factors combined to set the right conditions for a program such as the MHRDL Program to be initiated. The Vice President and Dean of Graduate Studies comments on the particulars:

> We needed to not be just a 9-5 campus. Berdahl was expanding Continuing Education opportunities to the community. We were looking at ways to serve more students without burning out faculty...I frequently introduce myself now as the dean of the largest public graduate school and the dean of the smallest private graduate school.

The Dean of Executive Education was in agreement:

> The university needed to be able to demonstrate that it could reach across borders and also reach into the community. Hands across the water if you will...We were considered somewhat inaccessible to the community.

The Vice President and Dean of Graduate Studies was also looking for ways to expand the vision and involvement of the two colleges in areas they traditionally had excluded from their activities:

> Business needs to be more involved in public enterprise. Education needs to be more involved in private education. We need to be part of the national debate on these issues.

The program was birthed in a time of change. The opportunity was available and the time was right to build something new. A program that addressed community needs, crossed internal university boundaries, produced revenue, and existed outside of the constricts of traditional education was an ideal innovation for the time.

Capitalizing on Diversity

While the cultural differences of the two colleges at first seemed to be most salient, they were not the challenge the key players had expected. A number of other differences were equally or more important and needed to be negotiated throughout the process.

"Many layers of collaboration"

Much of the literature on collaboration address the issue of the merging of cultures. In fact, organizational culture has become an important construct in organizational theory. However, one of the surprises about the collaboration was that the expected cultural tension did not seem to be as troublesome as anticipated.

> While some members of both groups did indeed hold the conventional stereotypes of business as "hard" and interested primarily in money and education as "soft" and no academically rigorous, those perceptions did not seem to impede the progress of the program in any significant way. *Program Facilitator*

> It wasn't really harder to do intercollege collaboration because that issue was surfaced early on as this huge thing which I think actually turned out, while, an issue, turned out to be of lesser import than was initially identified. *GSB Co-director*

> There are many layers of collaboration in here and only one was made explicitly, which is two colleges with two different cultures. Which actually in some ways was the easiest and most visible and the most well understood at a coarse and cursory level. *GSB Co-director*

> One of the things it was clear was going on in the [first] meeting was all faculty were looking at each other and trying to decide, "Can I work with this person?" Because to form a collaboration of this nature, which is complex and difficult to get up and running from ground zero, you have to be sure that, first of all, the other person's going to carry their fair share of the burden. And second of all, that you have something of the same vision so you're not working at cross purposes with each other. *CE Co-director*

> One of the most fascinating factors that struck me was that the initial players were frequently more worried about working with the others within their own college than they were working with the people across colleges. The political, personal, and professional relationships seemed much more important on an "intra" level than they were at an "inter" level. *Program Facilitator*

However, because of initial anticipation of cultural problems, the faculty initiated a retreat for the faculty and administrative players from the two colleges. How important this retreat was for getting the collaboration off on the right foot is unclear.

> We scheduled a meeting with an outside facilitator and facilitated what we might call a visioning exercise, but really had more to do with almost a merger in a sense. Because that's really what we were doing was merging. We set it up basically so that what we were doing was trying to look at what strengths did we think each of us brought and how could we make sure that what we did would not lose the strengths from either the GSB or the College of Ed. The idea was to build on strengths rather than focus on disagreements. *CE Co-director*

> What I recall from that meeting was to me it was critical and not critical. Here's how I can say both of those things at the same time. It was critical in that there was an establishing of some sort of shared destiny. Some sort of subtle feeling was created although there was no agreement on anything substantive. Which is why I say it was critical yet non-critical. *GSB Co-director*

"Collaboration as a Bouquet of Flowers."

Perceptions of the collaborative experience. Key players each viewed the collaboration in a different light. The vice president and dean of graduate studies held the vision for the collaboration when she said, "I think of collaboration as a bouquet of flowers. You want different flowers in the bouquet."

However the differences could be trying at times. In the words of one of the co-directors,

> It's like having kids. It really is a very good analogy. In retrospect, I'm very glad I did it. But I didn't have any idea of the full magnitude of what that would involve...You don't think about the fact that you're only getting three hours of sleep a night. You just do it. You mjust kind of go through it. So once those processes were set in motion, each of them had their own momentum. *GSB Co-director*

Nevertheless, all of the key players voiced admiration for what the other college and their faculty contributed and a belief that the program was far better as a result of the contributions from both sides.

> Actually, I have been stunned by the quality of what has evolved. It far exceeded either my vision or my expectation of what could come out of this collaboration. I knew the idea was good. I knew our partners were good. I just didn't know how well what we produced would exceed what either of us could do on our own. *CE Co-director*

> I think we have been able to bring together in the curriculum and in the pedagogy the best of both worlds. I think that really is a strength. We're able to deliver a broader range, teach a broader range of issues with a broader range of pedagogies than we could ever do with either side delivering on their own. I think we have a broader and better vision together. *GSB Co-director*

Strikingly, the two directors were very different in their strengths. Although this resulted in occasional tensions and misunderstandings on a day-to-day basis, the directors clearly respected the other's gifts.

> I don't know what would have happened without Alison's administrative skill. She made the program credible on an administrative level within the university and with students, and in a large bureaucracy such as a state university, these things are critical. She set up systems and made sure everything was done when it needed to be done. *CE Co-director*

> I trusted Annie's vision of the program. From the very first day, it was clear to me that at a big, overarching level, she had thought about this, she was able to articulate it. She knew where the thing needed to go at a big picture level. We weren't going to get anywhere without that. That was what we were going to sell. And that's what we were going to deliver once we sold it. Her vision was key. *GSB co-director*

The stylistic differences between the two directors and the disciplinary perspectives they represented were very evident to the students. None were surprised to see that on the Myers-Briggs Inventory all participants took at the beginning of the program that one preferred an extroverted/intuitive/feeling/perception style while the other preferred the opposite introverted/sensing/thinking/judgment style. However the result for everyone was that the challenges and benefits of difference were at once visible and open to discussion. One student described the dynamic in the following way:

> Annie and Alison couldn't be more different if they tried. Having one of them in the morning and the other in the afternoon is sometimes very disorienting. But on the other hand you can see how each of their strengths have been woven into the program. I for one certainly learn very different things from each one. *Student in first cohort*

Nevertheless, building a commonality between members of two different colleges geographically separated on campus did not come effortlessly. It took work. The dean of Executive Education was in a particularly good position to see some of the struggles with working across institutional cultures.

> We have to have enough of a common culture to tolerate each other's differences and to realize we're not going to see things eye to eye...We have to create our own mini-culture...to fill in the white space between the College of Education and the Graduate School of Business. It can be done if it's designed with respect and integrity... It takes conscious work. We have to let go of a lot. But the work is worth doing. *Dean of Executive Education*

Unexpected Cultural Differences

In addition to the intercollege differences and the individual stylistic differences that distinguished the two directors, demographic differences in age, gender, rank, and point of view at times caused misunderstandings. Similarly, differences emerged between people in the same department who had not necessarily worked together before and so were unfamiliar with and did not necessarily trust each other; groups that appeared homogeneous because they were in the same department were at times composed of strangers with little in common. Within colleges, interdepartmental but intracollege differences emerged. This kind of diversity is exemplified by the large amount of time the GSB co-director spent working with the Accounting Department and faculty in developing a course that was suitable for non-business and accounting majors. Additionally, faculty and administrators worked from differing role perspectives, and this at times created tension.

Strong Personal Motivation

Although this research focuses on five key players in launching the program, interviews revealed that those who contributed far exceeded that number. Most of those contributors have receded into the history of the program. However, the interviews revealed that motivations were diverse. For example, the Dean of Executive Education saw the joint program as an opportunity to "capture" surplus consumer dollars:

> The legislature votes a degree of subsidy from tax dollars...Populism is very high in this state. That means when you subsidize, you subsidize tuition, etc. We're leaving considerable money on the table in that many families could afford to pay more. It's a consumer surplus...When MHRDL came along, I saw it as an opportunity to capture some of the surplus.

The Vice President and Dean of Graduate Studies was more interested in developing ways in which the university could extend its expertise to serve the community:

> It's important to help corporations with their training and development. If we do not do it, they will do it themselves with less quality. Hamburger University, if you will...We have the strengths here. Intellectually, it is important that kind of learning has a research base...There is a need for renewal of people in organizations. Our HRD students should lead that.

The two co-directors spoke more of the opportunity to offer a better quality of direct service.

> I was teaching general courses in the MBA core. This was a chance to change my teaching assignments to my specialty. It was a change to teach something I would like to teach with an audience I thought I would have a very good rapport with. *GSB Co-director*

> To be perfectly honest, I was very tempted NOT to sign on to build this program. I was tired from having just been tenured and beaten by the struggle to stop the demise of the original program. But I guess I saw a lot of support from current and past students and heard them talk about what their experience in that program had meant to them. That was hard to ignore. I also knew that the program would be enormously enhanced by being able to integrate human resource management and business skills. The field of HRD was changing and this looked like an opportunity to change the program to address those changes. *CE Co-director*

Interpersonal Relationships and Communication

The founders of the program recognized from the beginning that communication and trust were going to be crucial to the success of this collaborative program. The first hiring decision the co-directors made was to employ a program facilitator who could span the boundaries of the collaboration and who could serve as an interpersonal

interface among faculty, staff, and students. The Dean of Executive Education referred to the need to fill in the "white space" between all of the players. The co-directors also had a sense that this role would be important, particularly in the absence of any formal organizational structure of authority.

> I knew from my own organizational experiences that interpersonal relations were not going to be easy in this situation. But I'm still always surprised at the extent to which those sorts of things can make or break a program. The fact that we hired someone who could play sort of an organizational development role between the two colleges and the two co-directors and facilitate a climate of open communication rather than letting minunderstanding go was absolutely essential. *CE Co-director*

> The Program Facilitator's role was pivotal to the program. A lot of gaps between dyads or in groups needed to be bridged that couldn't by the people involved at the moment it was needed...Kathy was able to do that. She was able to step in and fill the holes. *GSB Co-director*

> I think of my facilitative role as that of a border crosser. I try to understand what everone involved is thinking and feeling and to make sure we create space along the way to notice and negotiate any bumps on the road. *Program Facilitator*

Because no legitimate authority cuts cleanly across all of the boundaries in the collaboration, expertise and knowledge were difficult to identify and agree upon. Without traditional methods of resolving these differences, interpersonal trust became critical. Authority based on expertise are insufficient to overcome these differences. Trust had to be developed individually in the context of specific relationships.

Literature and Theory

Although employees in organizations are increasingly being asked to collaborate with colleagues across boundaries previously left inviolate, little research has been carried out on the subject. If the theoretical literature on postmodern organizations is reflective of some significant dimension of reality, then work in this area would be beneficial to many.

Literature

Existing research points at collaboration as a tool for innovation. The theoretical perspective for this has predominantly been that of knowledge creation, use, and distribution. For example, emphasizing the contribution collaboration makes to innovation, Goes & Park (1997) tentatively concluded based on a study of 400 California hospitals over 10 years, that cooperative relationships among distinct and related organizations were believed to enhance innovation. In particular, structural, institutional and resource-based links were all related to innovation in hospital services and technology. Other research has suggested that collaboration increases the quality of strategic decisions (Lessard, 1994). Other research utilizes the constructivist frame of organizations as systems of distributed knowledge for studies or discussions of the importance of moving across traditional boundaries in organizations (Brooks, 1994; Tsoukas, 1996). Finally, several researchers or theorists link cross-boundary collaborations to enhanced organizational learning (Richter & Vettle, 199X; Steensma, 1996; LeRoy & Ramanantsoa, 1997; Harvey, Palmer & Speir, 1998; Martiny, 1998; Kilmann & Kilmann, 1995).

Theory

Using Corbin & Strauss' (1990) strategies for grounded theory, two of the researchers asked themselves what seemed out most importantly to stand from the study regarding the question of what made the collaboration work. Both researchers were struck by the role interpersonal relationships played in making the program a reality. To integrate knowledge and interpersonal relationships requires a shift away from the economic conceptualization of knowledge as a commodity present in much of the research literature on collaboration and a shift toward knowledge as three tiered: (1) my knowledge, (2) my culture's knowledge, (3) and technical knowledge.

The creative production of new knowledge comes from the intersubjective negotiation of what is true and reasonable. Thus, facilitating cross-boundary collaborations in which both culture and interests are different seems to require attention to the dimensions of knowledge, the enabling of interpersonal relationships, and presence of a community in which the exchange of knowledge and opinions can freely occur. A university is in many ways

uniquely situated to produce unfathomable amounts of innovative new knowledge through the encouragement of collaboration. Distinctions are made among types of knowledge, faculty are free to move in time and space and cultivate relationships, and a sacred tradition of academic freedom guarantees the right to a community of freely exchanged knowledge and opinions.

Unfortunately, the historical norms present in much of industry whereby knowledge is often uncritically viewed as only technical, interpersonal relationships are limited by control of employees time and movement in space, and a unified culture is valued over diversity mitigate against the kind of innovation in knowledge to which universities can lay claim. Once any barriers were cleared in the central administration, collaboration on initiating the MHRDL Program was facilitated by the possession of valuable knowledge by both parties, the tradition in universities for faculty to move across boundaries of time and space, and the protection of free speech. However, because authority based on expertise is insufficient to overcome differences and because no legitimate authority cut cleanly across all of the boundaries involved, the development and maintenance of trust and interpersonal relationships were critical.

Conclusion

Tsoukas (1996) and Brooks (1994) have both argued that organizations are systems of distributed knowledge. Tsoukas, drawing on interpretive philosophy, ethnomethodology, Bourdieu's sociology, and discursive psychology, has gone on to assert that this means they are decentered and without an omnipotent "mind." This means that the organizational problem facing firms is the use of knowledge which is not and cannot be recognized through only one agent. No single agent can determine prematurely what kind of practical knowledge will be pertinent when relevant and where important. Knowledge of a firm cannot be monitored wholly and is not self-contained. It is innately indecipherable and endlessly shifting.

As organizations are increasingly faced with the unpredictability and fragmentation of a postmodern world, collaborations are becoming ever more common as a way of augmenting to address new challenges. The MHRDL program was begun on the foundation of an earlier program and drew on relationships and knowledge sources that themselves were unpredictable and fragmented. Although upper management enabled and advocated for the program, no one could have rationally planned and implemented a blueprint for its realization. Rather it was the multiple types of knowledge, the freedom to develop formal and informal human relationships in the workplace, and the long tradition of a community of that enabled the multiple parties both within and outside of the organization to contribute their knowledge to the program's success.

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An Examination of Teaching Pedagogies in Entrepreneurial Education, a Historical Examination

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This paper discusses some of the results of the 1997 national Survey of Entrepreneurial Education and compares the findings to four earlier national surveys conducted from 1979-1992. The results of the data, based on earlier surveys, indicate a trend toward greater integration of practical applications and technology into the teaching pedagogy of entrepreneurial education. The 1997 survey shows similar trends.

Keywords: Entrepreneurial Education, Pedagogy, Small Business Management Skills

In 1997, The George Washington University's School of Business and Public Management conducted the " The National Survey of Entrepreneurial Education ". The survey offered the academic field of small business management and entrepreneurial education an opportunity to present its new and expanded role in the teaching of small business and free enterprise to a generation of new and prospective entrepreneurs and students, both in the United States and internationally.

This paper will first provide the reader with background literature in the field of small business management and entrepreneurial education and some of the major differences and similarities between them. Next, there will be an examination of course structures and pedagogies in small business management and entrepreneurial education. The paper will then provide the results of the 1997 National Survey reflecting the "current state" of entrepreneurship and small business management education.

Literature Review

Growth in Small Business Management and Entrepreneurship Courses

Since the late 1960's, entrepreneurship education has been spreading around the world at an ever increasing pace (Vesper, 1985). Applied education in entrepreneurship can be traced as far back as 1938, to Shigeru Fujii, Professor Emeritus, Kobe University, Japan (McMullan and Long, 1987). Grant Moon of the U.S. Small Business Administration reported that prior to 1953, only the University of Illinois offered a course in "small business or entrepreneurship development" in the United States (McMullan and Long, 1987). In 1958, Dwight Baumann, an engineering professor at MIT, introduced what may have been the first course in entrepreneurship in the United States (McMullan and Long, 1987).

Sexton and Bowman (1984) reason that both government emphasis on small business development and prevailing economic conditions were playing a crucial role in the expansion of small business management and entrepreneurial course offerings. Plaschka & Welsch, (1990) also indicated that, a parallel was discovered in the rapid growth of small business management courses with the rapid growth of small businesses in the United States.

Most fundamentally, the growth in these types of courses may be influenced by the fact that teachers and students both enjoy them (Vesper, 1987; Vesper & McMullan, 1988). Though course offerings were increasing in number, demand for small business management and entrepreneurship courses was growing at an even greater rate (Vesper & McMullan, 1988), in part because student demand was high (Fernald & Solomon, 1993).

In order to understand both the growth of small business management and entrepreneurship courses, it is important to establish a conceptual difference between these two educational types-a differentiation that, too often, the literature fails to make (Zeithaml & Rice, 1987).

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Differences between Small Business Management and Entrepreneurship Courses

In attempting to distinguish differences between small business management and entrepreneurship courses, however, one should perhaps not overlook their similarities. The focus of both small business management and entrepreneurship education programs are to provide a breadth of creative managerial skills and knowledge that is the "closest approach to the original concept of professional management education offered at colleges and universities" (Zeithaml & Rice, 1987). Most often, courses in both areas tend to focus on the total firm. They provide coverage of the problems involved in planning, implementing and operating a small business for managers and owners, in regard to how to start-up a business and how to conduct ongoing activities.

Small business courses at the post-secondary level were first established in the 1940's (Sexton & Bowman, 1984) and dealt primarily with the managing and operating of small, existing companies. Entrepreneurship courses, which first emerged as academic offerings in the 1960's, had as their major focus, the activities involved in originating and developing new growth ventures (Guglielmino & Klatt, 1993; Marchigiano-Monroy, 1993). The conceptual difference is often blurred in both the academic and real worlds. Generally, small business management covers considerable information on how to successfully manage the business in order to expect normal sales, profits and growth. This includes coverage of planning and organizing the business, selecting and leading employees, business operations, marketing goods and services and financial planning and control. On the other hand, entrepreneurship courses emphasize information in which the principle objectives of the entrepreneur are profitability and growth. Entrepreneurs are usually seeking rapid growth, immediate and high profits and a possible quick sellout with a large capital gain.

In summary, teaching entrepreneurial skills and desired learning objectives of the two educational types, small business management and entrepreneurship are in fact different. The traditional objectives of small business management programs have been to provide students with management "know-how" relating to "setting goals and objectives, leading, planning, organizing, and controlling from a small business perspective" (Fernald & Solomon, 1993, p. 103). Entrepreneurial education has had as its focus an action orientation primarily embodied in teaching students how to develop a business plan (Ronstadt, 1985).

Course Structure and Pedagogies

Existing Pedagogical Approaches

Given there is reasonable support for the need to provide small business management and entrepreneurship courses, the prevailing issue is: what pedagogues are most appropriate for transferring entrepreneurial skills and knowledge?

Ronstadt (1985) characterizes the "old school" method toward small business and entrepreneurship education that:

> ...took an extreme, action-oriented approach to the subject. The motto of the old school was decidedly "go out and do it now". The business plan served as the academic heart of these courses. The rest of the curriculum was provided by experienced visitors who provided interesting stories, practical advice, and inspirational motivation (p. 23).

Other teaching methods described included literature reviews, interviewing of entrepreneurs, working with a start-up entrepreneur or the start-up of a small-scale business by a class. A survey conducted by Ahiarah (1989) revealed that the most used pedagogical tool for teaching small business management and entrepreneurship was a combination of lectures and cases. The second most used tool was special projects, which include live cases or case formulations. Other assignments included oral and written presentations, guest lectures, business plan preparations, and the use of films and videos. It is interesting that both Hills (1988) and Ahiarah (1989) found that assigned readings were the least preferred method.

Emerging Pedagogical Approaches

The "old school" as described by Ronstadt (1987) was beginning to give way to new methods of teaching small business and entrepreneurial skills. These new methods were arising from an increased understanding of entrepreneurship (Ronstadt, 1987) and a better understanding of entrepreneurship students. Porter and McKibbin (1988) have suggested that entrepreneurship education is moving towards integrative, comprehensive, and holistic programs. Sexton and Upton (1987) have proposed structuring courses around the psychological needs of entrepreneurship students. They conclude from their research that:

> entrepreneurship students can be depicted as independent individuals who dislike restraint, restriction, and the routine. They are capable of original thought, especially under conditions of ambiguity and uncertainty. Many of them need to develop better communication skills and to become more aware of how others perceive their behavior (Sexton & Upton, 1987, p. 38)

These conclusions lead Sexton and Upton (1987) to propose those courses should be relatively unstructured and "pose problems which require novel solutions under conditions of ambiguity and risk". Additionally, an increasing awareness of the special needs of adult students (Weinrauch, 1984) and minority students (Mann, 1990) is leading to an assessment of how small business management and entrepreneurship can best be taught.

Survey Methodology

The George Washington University developed a survey to examine the current state of entrepreneurial education in the United States. The survey developed was based on similar surveys used in 1979-1992. Minor changes were made to further track any new teaching trends and any new courses being offered. The survey was sent out to two-year community and junior colleges, four-year colleges and universities and international universities and colleges. The survey asked the educational entities if they offered small business and entrepreneurial educational programs. Also, the survey examined the extent and breadth of courses, seminars and workshops being offered existing and new. Finally the survey examined the teaching methods and trends used in the courses, seminars and workshops being offered. A copy of the questionnaire can be found at http:// www.gwu.edu/~nes.

An analysis of the data from our surveys, relative to the teaching and evaluation pedagogies employed by two- and four-year colleges, universities and international colleges in regard to course and seminar offerings in small business management and entrepreneurial education, is the focus of this next section.

Findings

For Table 1., the 1997 data indicate what teaching methods were offered. They include: (1) case studies (2) lectures of business owners development of business plans; (3) guest speakers; (4) research projects; (5) community development; (6) on site visits; (7) creation of business plans; (8) discussions; (9) small business institute counseling (10) feasibility studies (11) internships. The data indicate that the major evaluation pedagogy for all educational institutions surveyed was 1) Creation of business plans (87%), 2) Case studies (78%) and 3) Guest Speakers (69%).

For Table 2., the 1997 survey also inquired about the most popular courses being offered. For 2-Year Colleges, Small Business Management was the most popular course followed by Small Business Finance followed by New Venture Creation. For 4-Year Universities, New Venture Creation was the most popular course followed by Small Business Management and then Small Business Consulting. For 4 year colleges, New Venture Creation was the most popular course followed by Family-Owned Business and then by Small Business Finance. For International Colleges and Universities most popular course was New Venture Creation followed by Small Business Management and then Small Business Consulting.

Discussion of Results

To further understand the results of our survey, we examined the data from four historical surveys on small business management and entrepreneurial education (George Solomon,). The results of past surveys indicated a similar growth pattern in small business management and entrepreneurship course offerings.

For Table 3., the historical data (1979-1992) indicated that for 2-year colleges, the major evaluation pedagogy for the entire length of study were tests (41%). However, cases (19%) and business plans (17%) were becoming more widely used as evaluation pedagogy in both the small business management and entrepreneurship.

The historical data also indicate that for four-year colleges and universities, the number one choice as evaluation pedagogy for the entire length of the study were tests (26%). However, business plans (20%) and Small Business

Institute consulting (19%) and cases (16%) closely followed as preferred evaluation pedagogies. Therefore, both the 2 and 4-year colleges and universities preferred the test format as the evaluation pedagogy.

Table 1

Breakdown of Teaching Methods of Educational Institutions

	2 Year university	4 Year college	4 Year university	International colleges
Case studies	29	105	13	15
Lectures by business owners	19	80	9	13
Guest speakers	21	100	11	13
Research projects	18	66	5	8
Community development	1	23	2	1
On-site visits	7	47	4	8
Creation of business plans	30	127	13	17
Discussions	22	82	10	9
Small business institute counseling	1	55	0	8
Feasibility studies	5	37	4	3
Internships	9	52	2	5

Note. Total respondents: n = 209 Educational Institutions.

Table 2

Breakdown of Courses Offered by Educational Institutions

	2Year university	4 Year college	4Year university	International colleges
New venture creation	9	86	12	11
Small business management	25	68	1	9
Creative management and creativity	4	18	4	4
Small business consulting	3	58	4	5
Small business finance	13	48	5	4
Home based business	3	4	1	0
Women based business	3	6	0	1
Venture capital	1	27	2	0
Technology entrepreneurship	3	20	2	1
Innovation	3	17	2	3
Small business strategy seminar	9	32	5	3
Franchising	4	15	0	0
Family-owned business	5	23	6	4
Team building for start-ups	5	6	1	0

Note. Total respondents: n = 209 Educational Institutions.

Table 3

Small Business Management and Entrepreneurial Education Programs and Major Project Assignments

Year of the Study	1979		1982		1986		1992		
	2 Year Colleges		2 Year Colleges		2 Year Colleges		2 Year Colleges		
Major Projects, Tests and Experiential Learning Activities	Small Bus.	Entrepre-neurship	Small Bus.	Entrepre-neurship	Small Bus.	Entrepre-neurship	Small Bus.	Entrepre-neurship	Frequency
Tests	85	1	64	12	131	14	80	3	390
Business Plans	26	6	24	3	46	27	28	5	165
Cases	34	2	40	10	23	4	50	14	177
Consult Small Businesses (SBI)	0	0	1	0	2	0	2	0	5
Interview Entrepreneurs	5	1	3	0	2	0	6	2	19
Simulations	3	0	4	1	10	0	14	2	34
Individual Projects	8	0	10	1	12	0	10	1	42
Group Projects	4	0	8	1	8	0	3	1	25
Other									
4 Year Colleges and Universities									
Tests	43	13	52	15	96	42	142	64	847
Business Plans	33	14	34	20	55	58	81	92	734
Cases	39	13	24	17	41	32	72	48	463
Consult Small Businesses (SBI)	32	10	37	3	56	11	151	44	279
Interview Entrepreneurs	3	0	1	1	4	4	7	7	46
Simulations	4	4	5	4	8	10	10	7	52
Individual Projects	9	2	12	6	20	15	23	10	97
Group Projects	3	3	6	5	14	8	17	12	68
Other	12	2	16	27	27	10	56	14	89

Conclusion

Our 1997 survey indicates that the trend discovered in the 1977-1992 surveys have continued in a similar manner. The data also indicated that experiential teaching and evaluation pedagogies are increasingly being employed. The growth of small business management and entrepreneurship courses is an academic phenomenon, which is not likely to dissipate soon. More importantly, given the rise in course offerings, endowed chairs, majors and research, it is important not to lose sight of the uniqueness of the phenomenon under discussion and investigation -- the entrepreneur and small business manager/owner.

We believe based on the data presented in this paper, that there is a need to abandon more traditional forms of teaching and evaluation methods for more unique, unconventional ones. This opens the door for new paradigms of teaching and learning. Self-directed learning methods may help answer the growing needs of students by having personalized projects such as creating a business plan as their primary evaluation pedagogy. If the students are moving away from tests and favoring 'project' centered educational techniques, it makes sense to create a class environment that facilitates it.

Another consideration to be taken into account is to start applying technology in entrepreneurship and small business courses. As colleges and universities are beginning to realize that long distance learning is an integral part of learning, entrepreneurship and small business courses need to capitalize on this opportunity. The Internet is playing a major role in allowing this new type of education to take place.

Given the trends to date, it is hoped that educators and trainers will continue to move toward more unconventional, experiential-based teaching and evaluation methods. Traditional paradigms will not work when the focus of the learning is to broaden horizons and perceptions and, in fact, move individuals to a different plane of thinking and action where the focus is for them to become "Paradigm Pioneers" and to blaze new trails for others to follow.

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Examination of Critical Issues for Development and Implementation of Online Instruction

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This descriptive and exploratory study examined several critical issues affecting the development and implementation of online instructional programs. The intent of the study was to (a) help online program instructors, administrators, instructional designers, and technology developers understand the unique challenges and opportunities presented by online instruction; and (b) expand the base of knowledge regarding this new form of instructional delivery. The study has direct implications for online program development in HRD.

Keywords: Distance Learning, Online Instruction, Instructional Design

A primary goal of university level Human Resource Development (HRD) programs is to prepare professionals for leadership roles in HRD. HRD units in corporate America are responsible for employee training and professional development, with billions of dollars spent each year on education and training services. The importance of HRD has heightened in recent years due to technological advances in the workplace, concerns about the quality of education possessed by entry level employees, and the change toward more participatory organization structures and management practices. Efficient and effective training and development of the workforce is critical for helping corporations of all sizes adapt to change and remain competitive. Consequently, demand is high for well-trained HRD professionals who can effectively manage a wide variety of HRD roles and functions.

As the importance of private sector training continues to grow, a parallel growth in the need for professional development opportunities is evident. While most university HRD programs offer master and doctoral degrees in HRD through on-campus programs and traditional off-campus delivery means (e.g., distance education using television or audiographic systems), there is an increasing need to reach prospective students who are unable to commute to campus or participate in traditional remote offerings. To better serve the large numbers of working HRD professionals who desire professional development and advanced degrees, graduate programs are starting to create Internet-based courses that reach the widely distributed off-campus audiences not being served through traditional delivery methods.

Numerous issues must be addressed when developing and implementing online instructional programs. Some of these issues include factors that directly affect learner performance such as the knowledge and skills one brings to the instructional environment and the technologies used to deliver and support the instruction (Rothwell & Kazanas, 1998). Other issues of equal importance are the need to develop faculty skills in instructional design and technology use (Threlkeld & Brzoska, 1994; Willis, 1994), providing instructional technology training for the students who enroll in online programs (Willis, 1993), and establishing a technical support system to address the needs of both the instructors and the students (Willis, 1993, 1994).

Problem Statement

Although online instruction is gaining prominence in the delivery of advanced HRD degrees, little theoretical or empirical research has examined the critical issues affecting the development and implementation of online HRD graduate programs. To address this need, a descriptive and exploratory study of an online HRD Master degree program at a large Midwestern university was conducted in 1998. The purpose of this study was to (a) help online program instructors, administrators, instructional designers, and technology developers understand the unique challenges and opportunities presented by online instruction; and (b) expand the body of knowledge regarding this new form of instructional delivery.

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Research Questions

The following questions guided this examination of critical issues for online instructional development and implementation:

- What technologies are used for online instruction?
- What technical knowledge and skills are needed by students, instructors, and program developers to successfully participate in online programs?
- What training is needed by students and instructors before and during their participation in online programs?
- What are the technical support needs and requirements of online programs?

Review of Literature

Rapid developments in information technology have made possible a new method of distance education called *online instruction*. Online instruction can be defined as an innovative type of instruction that is delivered to remote audiences over the Internet (Khan, 1997). The Internet provides an opportunity to develop new learning experiences that were not possible previously (Alexander, 1995). One of the advantages of online instruction is that information/content can be delivered to any computer that has access to the Internet, anywhere and at any time. Harasim (1989) argues that online education is more than a new delivery mode. It is a learning domain that enables learners to engage in learning interactions more easily, more often, and perhaps more effectively, but also results in qualitatively new and different forms of educational interactions (p. 62). Even though online instruction is being rapidly adopted by many educational institutions and businesses to deliver instruction (ASTD, 1997), little is known about the critical issues that affect the development and implementation of online graduate programs. From the program developers perspective, a new understanding of these issues is critical for the development and implementation of quality online instruction.

One important area of online development and implementation neglected by research is the degree of technical knowledge, skills, resources, and support needed by students, instructors, and program developers. Even though technology is becoming very popular, the use of computers for instructional purposes is still not widespread and the lack of knowledge and skills in relation to hardware and software issues can create much frustration (Hill, 1997). The lack of knowledge and skills for online participation and development leads to the need for training. In this respect, the training of students and instructors has received some attention from researchers. Instructors must be trained, not only to use the technologies, but also to apply the technologies to their instruction (Franklin, Yoakam, & Warren, 1996). Also, because technologies must be updated to capitalize on new capabilities, skills must also be systematically updated to maintain the user's ability to employ the evolving technologies. Franklin, Yoakan, and Warren (1996) conclude that instructor development and training contributes more to an online system's success than any other factor. Beyond the instructors, the program developers and technical support staff also need to be well trained because the quality of an online program depends greatly on the expertise of the development team.

Methodology

This descriptive and exploratory study examined critical issues affecting the development and implementation of an online HRD masters degree program offered by a large Midwestern university. Started in June, 1998, the online program consists of a series of eight courses in human resource development and is being taught to a geographically dispersed cohort. The online graduate program was designed for individuals currently working in, or aspiring to, positions in human resource development.

Program Participants

A total of 23 individuals, mainly HRD professionals from corporations in the Chicago area, comprised the student body for this online cohort program. Though most students were from the Chicago area, one resided in Connecticut and a second was based in Georgia. Most students had considerable work experience in human resource development, with an average of over 4 years HRD-related employment. The participants had strong educational backgrounds with some of them pursuing their second masters degree. Demographically, the students were a very diverse group (i.e., 17 females/6 males; 5 minority students; age range from 25 to 50).

Data Collection and Analysis

A multi-method approach was used to identify issues affecting the development and implementation of online instruction. Data were gathered in this study using a wide range of methods including in-depth interviews, surveys, observations, and document analysis. Specific data sources included personal notes from participants, minutes and notes from project team meetings, and electronic data records (e.g., e-mail messages, WebBoard archives, IRC Chat logs, and synchronous activity logs).

Technology resource analysis. An examination of the technology resources required by online students featured analysis of hardware, software, and support systems necessary for participation in the program. The analysis of this area included a comprehensive "environmental scanning," a canvassing of comparative software reviews conducted by independent organizations, an inspection of computer system requirements for the software chosen for the online program, and testing of various hardware configurations to assess respective performance levels.

Technical knowledge and skill requirements. One goal of this study was to determine the technical knowledge and skills needed by instructors, program developers, and students who are involved with online instructional programs. To identify the technical knowledge and skills required by online instructors and program developers, two different methods were used: "environmental scanning" and in-depth open-ended interviews with key informants. Online programs identified through the environmental scanning were analyzed from a variety of perspectives, including the type of technology and communication tools used, instructional design approaches, synchronous and asynchronous activities, and course web design and navigation interfaces. Data regarding the knowledge and skills needed by instructors and program developers were supplemented with data obtained from open-ended interviews conducted with program participants, instructors, and developers.

Two methods were used to determine students' needs: observations and open-ended interviews. Three beta testers were observed while they navigated the course web site, completed exercises, and participated in synchronous and asynchronous activities. A checklist guided the observation process. This observation instrument was developed based on an in-depth analysis of the class web site and a list of tasks and procedures students would follow to participate in the online class. Once the beta testers finished reviewing the online course, they were interviewed to assess various aspects of their experience. Data from the observations and open-ended interviews revealed the knowledge and skills needed to successfully perform in the online program.

Training needs analysis. Structured surveys and document analysis were used to identify the training needs of students. The structured survey was used as a diagnostic tool that was completed by students prior to the start of the online class. Data from the structured survey of student training needs were analyzed using common statistical analysis. Documents collected during the program delivery were analyzed using a document analysis form. The researchers coded the related documents by relevant topic and different training needs. Observations and open-ended interviews were used to identify the training needs of the instructors. Specifically, the "participant as observer" approach was used (Creswell, 1994). Data revealing the training needs of instructors prior to and during the online delivery were obtained from observation notes kept by the researchers.

Technical support analysis. Strongly related to the analysis of technology resources is the technical support provided by the program. The difference in these variables, however, lies in the depth of analysis being conducted. During this phase of the study, the focus was on the forms of support services provided by the online program, how they were used by the stakeholders (e.g., toll free phone support, chat spaces, e-mail, Instant Messenger, personal visits, etc.), and the nature of the problems encountered (e.g., types of problems and their solutions). These data were in the form of descriptive narratives, frequency counts, recurring theme/category depictions, and frequency of occurrence mapping.

Results and Discussion

The results of this study are summarized in four sections that address critical issues for the development and implementation of online instructional programs. The issues deemed most critical include the technology resources used in online programs, the knowledge and skills needed to participate in online programs, training issues that need to be addressed by program developers, and the type of technical support that should be provided. Collectively, the following information can guide the development and implementation of online instructional programs.

Technology Resources Used in Online Programs

Appropriate technologies must be selected in order to achieve full and effective participation by online students and instructors. Based on a combination of (a) environmental scanning, (b) canvassing of software reviews, and (c) hardware requirement inspections and configuration tests, the following analysis identifies key technologies that support online program development and utilization.

A comprehensive analysis of online programs implemented by universities located in the United States and abroad was conducted. An analysis of over 150 online instructional programs and courses was carried out to identify common practices for course design and technology utilization. Based on this review, several conclusions can be made:

1. Email and web-based technologies form the core of most online courses.
2. Few online programs currently utilize audio and video conferencing technologies.
3. Few online programs use proprietary technologies in the delivery of their courses.
4. Most sites use technologies that conform to open industry standards (i.e., W3C standards).
5. On the minority of sites that utilized them, a blend of multimedia technologies were employed, such as streamed video clips and a modicum of animation and applets.

Once the basic technologies were identified from the environmental scanning, an analysis of independent software was conducted to determine the best software for utilizing these technologies. Based on that analysis, it was possible to conclude that the most applicable software for future online programs are:

- Eudora Pro 4.0 (e-mail)
- RealPlayer 5.0 (multimedia)
- Netscape 3.x or Internet Explorer 4.x (web browser)
- AOL Instant Messenger 2.0(paging/messenging)
- Winsock FTP LE 95 (file transfer)
- Microsoft Office 97 (production)
- Acrobat Reader 3.0 (document sharing)

To further identify technology resources appropriate for online programs, technology reviews in online and paper-based industry publications were examined. Several trends from these reviews were apparent:

1. With little surprise, industry standard software, such as Microsoft Office and Netscape's Communicator, are viewed as the best, or near the best, in their respective categories.
2. Cross-platform availability, reliability, cost, ease of use, and customizability are central factors common to most technology review/selections.
3. Compliance with accepted industry standards, accessibility support, and advanced features are occasional factors in the reviews.

Hardware configuration requirements. To ensure that students use computer systems capable of supporting the technologies selected for use with online programs, all technologies listed above were reviewed for hardware specification requirements. These requirements were developed based on tests using multiple hardware configurations to measure performance levels and to develop final recommendations and requirements. The minimum and recommended specifications for a Windows-based system are shown in Table 1.

Table 1
Minimum and Recommended Systems for Participation in Online Programs

Minimum Configuration	Recommended Configuration
• 486process running at 100 MHz	• Pentium 166 MHz Processor (or faster)
• 16MB RAM	• 32MB RAM
• 200MB available disk storage*	• 200MB available disk storage*
• 14.4 modem	• 28.8 modem
• 16-bit sound system	• 32-bit sound system
• 4x CD-ROM	• 12x CD-ROM

Note. * Storage space estimates the amount of space required to store all of the applications (Microsoft Office, etc.) and the work/data files generated by the students during the course of the program.

Technical Knowledge and Skills Needed to Participate in Online Instruction

Building on the technologies identified for online instruction, key informants, instructors, and program developers were interviewed to determine the knowledge and skills required to use the selected technologies to support their role as instructor, program developer, or learner. Also, three beta testers were observed and interviewed. Results are presented below in two parts: (a) the knowledge and skills required to develop and conduct online instruction and (b) the knowledge and skills required to participate in online programs.

Knowledge and skills required by developers and instructors. The development of online instruction requires that both the instructors and the program developers know basic operation of word processing and presentation software, multiple web browsers, and HTML editors. In addition, program developers need advanced knowledge and skills for creating multimedia files, to transfer files from development machines to servers and, for some online programs, the ability to design database systems using software such as ColdFusion or Microsoft Access. For synchronous activities, developers and instructors also need to be able to broadcast and archive live audio and use text chat to interact with students. Additional skills include the management of e-mail and threaded discussion group software as well as chat functions. Possessing the knowledge and skills needed to implement these functions are very important for program development, management, monitoring, and troubleshooting. Table 2 provides a summary of the specific knowledge and skills required by instructors and program developers, by phase and by application.

Knowledge and skills required to participate in online programs. Data from observations and open-ended interviews conducted with the three beta testers revealed that to fully participate in an online instructional program, including both synchronous and asynchronous sessions, students should have basic skills in using web browsers, threaded discussion groups, and e-mail applications. Table 3 presents a summary of the specific knowledge and skills needed to effectively participate in online delivery.

Training Needs of Online Students and Instructors

The following description of training needs of students and instructors was derived from data collected through use of a structured survey, interviews, and electronic data archives. In addition, numerous experiences were gained through the development and implementation of an online degree program in HRD over the past year. The following section identifies the training needed by both the students and the instructors of online programs.

Training needed by students. An analysis of the online students' technology resources and capabilities was conducted to determine if the students in the program had adequate computer resources and the skills needed to participate in online instruction. Based on this analysis, technology training was clearly the type of training most needed by the majority of the students. For example, most of the students did not have the skills necessary to download software from the Internet or use a Web Browser to conduct searches or install plug-ins to play multimedia files. Specifically, training was needed in advanced uses of web browsers and use of communication tools such as e-mail and WebBoard. In addition to providing training on the use of the new technologies for online instruction, the students needed to be trained to install software and troubleshoot problems when they occurred.

The necessary technology training was provided in several forms. First, an orientation session was designed and implemented during the first class session. Computer applications and tools used for the online instruction were presented and explained in order to familiarize the students with the technology. Second, before the beginning of the course, the students were required to complete an orientation assignment located on the course web site. The assignment included tasks that helped the students gain the necessary skills needed to participate in the online class, such as sending e-mail attachments, posting messages in WebBoard, and listening to audio files. The third form of technology training involved hands-on practice with the specific technologies to be used by the students. Step-by-step explanations were integrated into the instruction early in the course and students were encouraged to practice using the new technology.

Technology training was perceived as a way to avoid frustration, wasted time, and potential dropouts. Technology training was also perceived as a critical event to be accomplished before presenting actual course content. Training is critical because the online students want to be confident in using technology before they engage in the learning the content. The students perceive technology training as a way to be better prepared to learn the content.

Training needed by instructors. The instructors and teaching assistants involved with the first two online courses in the program were asked to identify the type of training they needed prior to and during their participation in the online program. Different types of training needs were identified prior to the start of the online program, including (a) orientation training, (b) communication-skills training, and (c) technology usage training. The instructors indicated that if a good orientation training program was offered prior to the start of the online program, training during the courses would not be as necessary unless there are changes or updates in the technologies being used.

Table 2
Technology Knowledge and Skills Required by Program Developers and Instructors

Software Function	Software Applications	Specific Knowledge and Skill Requirements	
		Program Developers	Instructors
Document Creation	Word Processing	Create and format documents using tables and borders. Convert documents to HTML file	Create and format documents using tables and borders Convert documents to HTML file
	Presentation Software	Create instructor presentations, use templates, add clip art, print, and record narrations. Create presentations for use on the Internet	Create instructor presentations, use templates, add clip art, print, and record narrations. Create presentations for use on the Internet
WWW Access	Web Browser	View and navigate WWW, use search tools and bookmarks, use plug-in to play multimedia files, and download programs from Internet.	View and navigate WWW, use search tools and bookmarks, use plug-in to play multimedia files, and download programs from Internet.
Communication & Collaboration	E-mail	Create, forward, and reply to messages and send attachments. Sort incoming mail and create mailing lists	Create, forward, and reply to messages and send attachments. Sort incoming mail and create mailing lists
	WebBoard	Post, delete, and attach files to a message and participate in chat sessions	Post, delete, and attach files to a message and participate in chat sessions
	RealEncoder	Broadcast live audio and archive audio files	Broadcast live audio and archive audio files
Web Page Development	HTML editors	Create and edit Web pages. Use templates, forms, images, multimedia files, and advanced HTML tags	N/A
	Database	Write and test scripts to create and maintain online grade books	Provide grades and feedback and download students' assignments
	File Transfer	Upload and download files to the course server	N/A
Multimedia Development	PhotoShop	Create and edit images	N/A
	Digital Video	Create and edit streaming video	N/A
	Scanning	Scan texts and images	N/A

Table 3
Technology Knowledge and Skills Required by Program Participants

Software Function	Software Applications	Specific Knowledge and Skill Requirements for Participants
Web Access	Web Browser	View and navigate WWW, use search tools and bookmark, use plug-in to play multimedia files, and download programs from Internet
Document Creation	Word Processing	Create, format documents using table and border functions
Communication and Document Exchange	E-mail	Create, forward , and reply messages, and send attachment
		Sort incoming mail and create mailing list
	WebBoard	Post, delete, and attach files to a message and participate in chat rooms
	Various Software	Install, use, upgrade, troubleshoot software
	Database	Submit assignments and access instructor feedback and grades

An orientation training session for online instructors and teaching assistants was considered an essential element to the success of an online course. The following five essential components of an orientation training program were suggested by the instructors:

1. *General overview of the online program*. The first component of an online orientation training program should provide instructors with a general overview of the program, processes involved in using the online instructional system, and how they are supposed to work with instructional designers, web designers, database developers, and technical support. In short, there should be a clear orientation so the instructor understands the structure of the entire program and can better determine their roles and responsibilities. Another element considered important is the organization's vision of the online program as well as its importance to the organization.
2. *Description of the differences between online and face-to-face instruction*. Regarding the differences between these two types of delivery formats, instructors felt that those who have not experienced teaching online should be provided with an introduction to the differences between online and face-to-face instruction. Specifically, the level of detail needed for online delivery and the importance that details play in this type of instruction need to be emphasized. The instructors felt they should be trained on how to adapt face-to-face strategies to online environments. Also, because of the environment in which instruction is delivered, instructors felt they should be introduced to more innovative teaching strategies. In other words, the orientation-training program should provide them with a set of varied teaching options that can be effectively carried out in online environments.
3. *Differences between synchronous and asynchronous delivery*. Training should help instructors better prepare for synchronous and asynchronous delivery formats. For the synchronous sessions, they should be informed about strategies that promote individualized instruction and encourage active participation. For asynchronous sessions, instructors felt they should be prepared to manage time more effectively, learn how to be instructionally flexible, how to provide timely feedback without getting burnt out, and how to create and manage virtual teams.
4. *Communication skill training*. The online instructors felt that oral and written skills are probably much more important in online instruction than in face-to-face instruction. The lack of personal contact and the inability to see people's gestures puts a major burden on oral and written communication. The instructors felt that some information should be provided on how to effectively address online students and how to provide feedback and constructive criticism without being perceived in a negative way. They felt that good online communication skills are necessary because mistakes are more likely to be noticed by online students than face-to-face students. Finally, they suggested that this type of training should provide them with information on how to develop their skills to better interact with students, both formally and informally.
5. *Technology use training*. The instructors and teaching assistants stated that it is essential to know how to use the technology and be able to diagnose and solve common problems. They felt it was necessary to have technology training to get them to the level of feeling comfortable using the technology to interact with people. The instructors felt that they should be provided with many opportunities to gain "hands on" experience. They felt

that the best training is the one that most closely simulates the reality of online instruction. The instructors and teaching assistants recommended that they be provided the opportunity to practice in simulated environments until they attain the level of confidence necessary to perform naturally. One-on-one training was found to be effective in learning to master the new technologies.

Other topics that were mentioned as important for an instructor training program included copyright and fair use issues, institutional intellectual property rights policies, how to foster and assess deep learning, strategies for better preparation and time management, and how to facilitate collaborative learning online.

Technical Support Needed for Online Programs

Technical support is a critical aspect of any online program. Without a mechanism for supporting online instructors and students, frustration is sure to occur. The following listing of technical support for online programs was developed based on an analysis of the types of problems faced by instructors and students as they participated in an online program. This information is organized according to (a) the nature of the technology problems confronted and their resolution, and (b) the forms of technology support offered within the program—both initially and currently.

Nature of technology problems. An analysis of e-mail messages, technical support logs from a toll-free telephone support line, and archives from Instant Messenger communications provided a clear picture of the types of problems encountered by students and instructors, their frequency, and the reporting methods used. During the first online course, 90% (n = 34) of the requests for assistance occurred during the first half of the course. E-mail was the most common method used to report problems and request technical assistance (86% of all requests). Approximately 50% of the students used the technical support services, with an average of 3.5 support requests per student. Regarding the type of problems being reported, the most common problem was associated with an organizational firewall at a students' place of work that affected the delivery of audio and video files and prevented access to collaboration tools such as WebBoard and IRC chat. Other frequently reported problems were related to the lack of web browser skills, inaccurate use of e-mail functions such as attachments, and server problems due to external causes such as severe weather conditions in the form of storms and lighting. During the development of the first course, a total of 11 different types of problems were reported. These were problems related to email, browsers, WebBoard and its chat function, RealPlayer, server malfunctions, technical terminology, acknowledgment of messages and document submissions, and PowerPoint presentations.

An analysis of technical problems during the second online course revealed similar results. In this case, 92% of the support requests were for assistance during the first half of the course. The number of students requesting assistance increased slightly from the previous course, from 50% of the students in the first course to 61% in the second course. During the second course, access problems due to firewall constraints at a student's work location was a common problem, followed by problems with RealPlayer, and difficulties associated with uploading assignments to the course database. The uploading feature of the database was a new feature in the second course. During the development of the second course, there was a decrease in the types of problems reported. A total of 9 different types of problems were reported. These were problems related to the introduction of a new database for uploading documents to the instructor, server malfunctions, PowerPoint files, access to the we site, and access to the WebBoard and ChatBoard due to changes in IP numbers. Three other problems came from new students joining the cohort. These problems were related to the use of speakers, volume, and printers.

Forms of support offered. Given the types and frequency of technical problems from the first two online courses, as well as the prior expectations of potential obstacles, multiple support features were implemented in an effort to reduce the number of technical problems experienced by the online instructors and students. As a result, a comprehensive support system was created for the online program. Initially, only e-mail support and a toll free telephone line to provide access to online staff during normal business hours was provided. While these forms of support were adequate for most technical problems, there were instances where immediate assistance was required during non-business hours. To that end, additional support features were developed and implemented, including a set of Frequently Asked Questions (FAQ) that contain solutions to various problems, the availability of Instant Messenger for 1-to-1 and small group conferencing, and 24-hour chat-based support provided through a "Help Desk" manned by the university's Web Technology Group. With these five support options in place, virtually all of the technological support needs of the online students and faculty can be met satisfactorily.

Summary

This paper examined a variety of critical issues related to the successful development and implementation of online instructional programs. While many of these issues are taken for granted when planning traditional face-to-face instruction, they must be carefully considered when venturing into the realm of online programs. Programs delivered entirely online cannot simply be modifications of existing courses, rather, they must be viewed as completely new delivery systems that present different and unique problems. Online program developers need to carefully analyze the context and source of problems that arise and design appropriate interfaces, technology solutions, and support mechanisms to resolve the difficulties that will be faced by both the instructors and the students.

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